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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,300	03/07/2002	Ho-Jin Kweon	1567.1027	3618
21171	7590	01/26/2004		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER ALEJANDRO, RAYMOND	
			ART UNIT 1745	PAPER NUMBER

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)
10/092,300	KWEON ET AL. <i>CD</i>
Examiner	Art Unit
Raymond Alejandro	1745

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, or if a reply within the statutory minimum of thirty (30) days will be considered timely,
- If NO answer for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 05 December 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 15-23, 25-32, 34 and 35 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6, 10-14, 24 and 33 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 March 2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 03/07/02.      4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.  
5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of claims 1-6, 10-14, 24 and 33 in the response dated 12/05/03 is acknowledged. The traversal is on the ground(s) that "Group II, claims 7-9 and 25-31 are so closely related to the elected claims 1-6, 10-24 and 32-35 that they should remain in the same application. That the Examiner's search would naturally encompass both method and product technologies. As such, beyond showing separate classifications, no serious burden is imposed". This is not found persuasive because the particular search for the elected claims is not required for non-elected claims, that is, the search required for the positive active material itself classified in classes 429/231.35, 223, 224, 231.1 is not particularly required for the method of preparing the positive active material composition classified in classes 423/306, 463, 464, 465, 594.4, 594.6 or 599. As admitted by the applicants, the inventive concepts involve both the active material composition per se and the method of preparing the active material composition itself. However, since the restriction requirement has been treated as process of making ad product made, it is further noted that the inventions are distinct because the process as claimed can be used to make other and materially different product, (*as admitted by the applicants*) the process can be used to make any of the materially different lithiated compounds as recited in claim 2 and/or used to make any of the positive active material composition adding any of the specific additive compounds as recited in claim 1 per se. Additionally, the product as claimed can be made by another and materially different process, (*as admitted by the applicants*) by a method including the operation of mixing a coating composition with a lithiated intercalation compound particulate and fusing the coating compound to coat the particulate. Accordingly,

serious burden would be raised if the search of the two different inventions i.e. the positive active material composition and the method of preparing same was made as required for the separate and distinct inventions.

2. With respect to both species, it is noted that as admitted by the applicant and disclosed in the specification, the positive active material composition does embody several distinct species being chemically differentiated from each other by the addition or substitution of diverse and individual chemical elements. Thus, the disclosure and the claimed invention encompass several different and separated embodiments which are mutually exclusive and will show different properties and characteristics. Accordingly, serious burden would also be raised if the search of the different species was made as required for the separate and distinct inventions.

The requirement is still deemed proper and is therefore made FINAL.

*Priority*

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

*Information Disclosure Statement*

4. The information disclosure statement (IDS) submitted on 03/07/02 was considered by the examiner.

*Drawings*

5. The drawings were received on 03/07/02. These drawings are acceptable.

*Specification*

6. The disclosure is objected to because of the following informalities: it is noted that Figure 3 does not show the reference numerals disclosed in the specification at paragraph 0028.

Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6, 10-14, 24 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Amatucci et al 5705291.

The present claims are drawn to a positive active material composition wherein the disclosed inventive concept comprises the specific additive compound.

In reference to claims 1 and 10:

Amatucci et al disclose a positive electrode comprising a lithiated composition particulate comprising the positive electrode which have been coated with a passivating layer of a composition comprising a borate, lithiated borate, aluminato, lithiated aluminato, silicate, lithiated silicate or mixture thereof (ABSTRACT). It is also disclosed that the lithiated

intercalation compound is coated with coating compositions comprising boron oxide, boric acid, lithium hydroxide, aluminum oxide, lithium aluminate, lithium metaborate, silicon dioxide, lithium silicate or mixtures thereof (CLAIMS 1 and 6/ COL 2, lines 5-25). *It is noted that such coating compositions represent additive compounds, that is, compounds added to, included to or incorporated into the positive active material.*

6. A rechargeable battery cell comprising a negative electrode, a positive electrode, and an intermediate nonaqueous electrolyte characterized in that said positive electrode comprises a particulate lithium intercalation compound the particles of which are coated with a passivating layer comprising an annealed coating composition comprising 25 boron oxide, boric acid, lithium hydroxide, aluminum oxide, lithium aluminate, lithium metaborate, silicon dioxide, lithium silicate, or mixtures thereof.

5 These objects, among others, have been achieved in the present invention by means of a novel lithium intercalation cell in which the surfaces of aggregate lithiated intercalation composition particulates comprising the positive cell electrode have been passivated by coating or encapsulation in a 10 layer of a composition comprising a borate, lithiated borate, aluminate, lithiated aluminate, silicate, or lithiated silicate. Such a coating not only reduces the surface area, and thus the degree of activity, of the potentially catalytic particulate aggregates, but also provides a barrier layer which, while 15 limiting contact between the electrolyte and the positive electrode particulates, does not seriously deter the passage of Li<sup>+</sup> ions.

In a preferred embodiment of the present invention, the 20 surfaces of these particulates are coated with a layer of a composition comprising boron oxide, boric acid, lithium hydroxide, aluminum oxide, lithium aluminate, lithium metaborate, silicon dioxide, lithium silicate, or mixtures thereof. In another embodiment of the present invention, the

In reference to claims 2 and 11:

Amatucci et al teach the use of LiCoO<sub>2</sub>, LiNiO<sub>2</sub> and Li<sub>1+x</sub>Mn<sub>2</sub>O<sub>4</sub> (COL 1, line 38-42).

*EXAMPLES 1-3 illustrates the specific use of LiMn<sub>2</sub>O<sub>4</sub> (EXAMPLES 1-3).*

In reference to claims 3 and 10:

Amatucci et al shows with *sufficient specificity* the use of H<sub>3</sub>BO<sub>3</sub> and/or B<sub>2</sub>O<sub>3</sub> compounds among others. Amatucci et al also disclose the use of composition comprising a borate, lithiated

borate, aluminato, lithiated aluminato, silicate, lithiated silicate or mixture thereof (ABSTRACT). It is also disclosed that the lithiated intercalation compound is coated with coating compositions comprising boron oxide, boric acid, lithium hydroxide, aluminum oxide, lithium aluminato, lithium metaborate, silicon dioxide, lithium silicate or mixtures thereof (CLAIMS 1 and 6/ COL 2, lines 5-25).

In reference to claims 4, 12, 24 and 33:

It is disclosed that such additive compound can be added in an amount ranging from 0.4 to 1.0 % by weight (EXAMPLES 1-3). In particular, EXAMPLE 3 shows the addition of 0.4 % of the borate powder (EXAMPLE 3).

In reference to claims 5 and 13:

As to the method limitation, i.e. *the additive compound being prepared by the specific drying and temperature treatment (heat treatment)*, it is noted that a method limitation incorporated into a product claim does not patentably distinguish the product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made.

In reference to claims 6 and 14:

It is disclosed that the coating composition has either a glassy or crystalline form (COL 4, lines 13-17); in particular, the borate is amorphous (EXAMPLE 1).

Hence, the applied prior art anticipates the present claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro  
Examiner  
Art Unit 1745

A handwritten signature in black ink, appearing to read "RAJ". It is written in a cursive style with a prominent, sweeping flourish extending from the right side of the letters.